

ABSTRACT

The invention relates to a sustainable process for treating contaminated fluids that utilizes a cellulose-based medium to adsorb contaminants in contaminated fluids and vapors. First, the cellulose-based material is tightly packed into a column. Contaminated fluid is then passed through the column to provide intimate contact between the contaminated fluid and the cellulose-based material. As the contaminated fluid flows through the column, the cellulose-based material adsorbs the contaminants (both organic and inorganic contaminants) due to the adsorptive properties of the cellulose-based material. The column is operated until the attenuation capacity of the cellulose-based material within the column is reached (i.e., when contaminants are found in the effluent). The cellulose-based material is then removed and composted and a new cellulose-based material is packed into the column. Composting is used to reduce the volume of the spent cellulose-based material and degrade and concentrate the contaminants. The final product from the composting step is substantially free from contaminants.